



MISSOURI DEPARTMENT  
OF CONSERVATION

Jim Rathert



# Snakes<sup>OF</sup> Missouri

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Red milk snake  
*Lampropeltis triangulum sypila*



Tom R. Johnson

*Eastern garter snake eating a leopard frog.*



Tom R. Johnson

*Prairie kingsnake shedding skin.*

**S**nakes have generated more fear and misunderstanding than any other group of animals. Psychologists have proved that a fear of snakes is acquired; we are not born with it. Once people learn some of the interesting facts about snakes and discover that most of them are harmless and beneficial, their aversion may diminish. With patience and understanding, almost anyone can overcome a dread of snakes and actually enjoy studying them. One thing is certain—even people with a well-developed fear of snakes are curious about them.

Missouri, with its wide variety of wildlife habitats—prairies, Ozark hills and valleys, swamps, marshes—has 46 species and subspecies of snakes (a subspecies is a geographic race of a species). Most of our snakes are harmless. Although many may bite in self-defense, their bites usually produce nothing more than harmless scratches. There are only five species of venomous snakes in all of Missouri, and we describe them in a separate section of this pamphlet.

Snakes are members of the Class Reptilia, a group that also includes turtles, alligators, crocodiles and lizards. Snakes and lizards are similar in many ways, but there are some important differences. A clear, non-movable scale covers the eyes of all snakes, whereas most lizards have moveable eyelids. Most lizards have legs, but some are legless. The slender glass lizard, which lives in the southern half of Missouri, is an example; it looks like a snake because it has no legs, but like all our lizards, the slender glass lizard has moveable eyelids and external ear openings, both of which are lacking in snakes. In addition, lizards have a pair of lungs, while most snakes have an elongated right lung and either no left lung or only a rudimentary one.

Although snakes are legless, they are able to move about with ease. A snake's backbone has from 200 to 400 vertebrae, depending on the species, which permits extreme flexibility. Snakes move forward by a side-to-side movement, or in a straight line by literally walking on their ribs. All snakes can swim.

Snakes must swallow their food whole, and some can engulf animals three times the diameter of the snake's head. The lower jaws of snakes are loosely joined to the skull and the upper jaws are moveable. A snake grasps its prey (fish, frog, mouse) by the head and engulfs it by advancing first one side of the jaw and then the other. The snake's teeth also help it swallow. The teeth are sharp and curve toward the rear of the mouth. They hold the prey and prevent its escape. Some snakes, such as water snakes and garter snakes, eat their prey alive, while venomous snakes usually inject venom into the animal and swallow it after it is dead. Several Missouri snakes, such as the rat snakes, kingsnakes, milk snakes and bullsnakes, kill by constriction. The snake grasps the prey in its mouth and immediately wraps several tight coils around it. Thus prevented from breathing, it dies from a lack of oxygen. Then the snake swallows its prey.

The snake's long, forked, extendable tongue is often thought to be dangerous; in fact, it is completely harmless. Snakes and lizards use their tongues to pick up odors that are transferred to special sense organs in the roof of the mouth.

The food habits of Missouri's snakes are as varied as the types of snakes we have. Some, such as the rough green snake, eat insects and insect larvae. Others, like the water snakes, eat fish, frogs, tadpoles or crayfish. The black rat snake and bullsnake eat rodents and small birds and their eggs. Kingsnakes also eat rodents and are important predators on lizards and other snakes, including venomous snakes.

All snakes shed their outer layer of skin periodically as they grow. Young ones usually shed once every four or five weeks during warm months, whereas adults may shed once every six or eight weeks during their active season. In the case of rattlesnakes, a new segment is added at the base of the rattle at each shedding. In Missouri, rattlesnakes may shed from two to five times a year. As the rattle becomes longer, the old segments weaken and may break off, so it is not possible to determine the age of a rattlesnake by counting the segments in the rattle.

In Missouri, snakes normally breed in the spring, soon after they emerge from winter dormancy. Studies show, however, that a few species may breed in the fall. About half of Missouri's snake species lay eggs; the rest give birth to fully developed young.

Some egg-laying species are black rat snakes, bullsnakes, kingsnakes, racers, worm snakes, ring-necked and rough green snakes. The size of the egg depends on the species; the number of eggs produced depends on the size of the female. The larger the female, the more eggs she can produce. Snake eggs are elongated and have a tough, leathery shell. Females select rotten logs or stumps, leaf litter or sawdust piles in which to deposit their eggs. As a young snake develops within the egg, a small "egg tooth" grows on the tip of its snout; the snake uses this "tooth" to slit the shell when hatching. Afterwards, the "tooth" is shed. Snakes usually hatch in late summer or early fall.

Snakes which retain their young until they are completely developed are water snakes, garter snakes, brown snakes, copperheads, cottonmouths and rattlesnakes. This form of

## Live-bearing vs. Egg-laying



*Diamondback water snakes being born.*



*Rough green snake hatching.*

reproduction is slightly advanced over egglayers. The young snakes are retained and protected inside the female during their development. Each young snake is protected inside a thin, sac-like membrane containing yolk for nourishment. Some of the young snakes break through the membrane while inside the female and emerge from the female in a tight coil; others break through after being born. Snakes that develop inside the female are normally born in mid to late summer.

The smallest snake native to Missouri is the flat-headed snake (*Tantilla gracilis*), which averages from 7 to 8 inches (18-20 cm) long. The largest is the bullsnake (*Pituophis melanoleucus sayi*), which averages from 50 to 72 inches (127-183 cm).





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## Western Worm Snake

*Carphophis vermis*

This species is usually purplish-brown above and salmon pink on the belly and lower sides. The tail has an interesting (and harmless) spike which also helps it maneuver through soil. Length ranges from 7 to 11 inches (18-28 cm). This species is never seen in the open; it either hides under rocks, logs or boards, or burrows into damp soil or leaf litter. Worm snakes mainly live on wooded hillsides. They eat earthworms and insect larvae and eggs.

**Missouri Distribution:** Statewide, except for extreme southeastern corner and a few counties in the north-central part of the state.



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## Northern Scarlet Snake

*Cemophora coccinea copei*

One of Missouri's most brilliantly colored snakes that is extremely rare to find. It is similar in pattern and color to the red milk snake, but instead has a red or orange color snout and a spotless, white belly. It is 14 to 20 inches (36-51 cm) long. This secretive snake spends much of its life underground, surfacing to feed mainly on eggs of other reptiles and occasionally rodents, lizards and small snakes. It is named for the red or crimson colored blotches along the back.

**Missouri Distribution:** South-central and southern parts of the state.



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## Eastern Yellow-bellied Racer

*Coluber constrictor flaviventris*

Local Name: Blue Racer

Color of this common snake is variable—from olive, tan, brown or blue to nearly black. The belly may be yellow, cream or light blue-gray. Young racers are clearly marked with brown blotches and spots (see inset), but these markings fade and eventually disappear as the young snakes grow. Length averages from 30 to 50 inches (76-127 cm). Racers prefer bushy fields, grasslands and open woods. This species is active by day and will take shelter under rocks, brush or in animal burrows if pursued. As the name implies, racers can move fast, especially through tall grass or brush. As with many of our harmless snakes, a racer sometimes will vibrate its tail when alarmed. Food includes frogs, lizards, snakes, small rodents and birds.

**Missouri Distribution:** Statewide, replaced by the southern black racer—a subspecies—in southeastern Missouri.



## Prairie Ring-necked Snake

*Diadophis punctatus arnyi*

Ringneck snakes are easily recognizable by their small size, uniform dark color on the back, bright yellow-orange belly and distinct yellow ring around the neck. The back can be dark brown, gray or blue-black. The belly is yellow, changing to orange near the tail. The belly also has small, black spots which are irregular in size and pattern. Length ranges from 10 to 14 inches (25-36 cm). Ringnecks live on rocky, wooded hillsides. Ringneck snakes are secretive and not only take shelter under rocks but also find prey there—worms, slugs, soft bodied insects and small salamanders.

**Missouri Distribution:** Statewide, but replaced by the Mississippi ring-necked snake—a subspecies—in the southeastern corner.



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## Great Plains Rat Snake

*Elaphe guttata*

This species is another member of the rat snake group and is seldom seen. This snake has numerous brown blotches along the body, a brown eye stripe, and a spearpoint marking on top of the head. It is 24 to 36 inches (61-91 cm) long. Lives in open, rocky, wooded hillsides, where they venture out at night to feed on rodents, bats and small birds. Like other rat snakes, Great Plains rat snakes vibrate their tails when alarmed, and will bite to defend themselves, but the bite is harmless.

**Missouri Distribution:** Mainly wooded areas in the southern half of the state and along Missouri River counties, excluding southeastern counties.



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## Black Rat Snake

*Elaphe obsoleta*

Local Name: black snake

This is one of our largest common snakes. It is generally shiny black, but some individuals show dark brown blotches. Skin between the scales along the sides may be red. The belly is mottled with gray or may be checkered with black. Length averages from 42 to 72 inches (107-183 cm). Black rat snakes live in a wide variety of habitats: rocky, wooded hillsides, wooded areas along rivers, in or near farm buildings. This species is well known for its ability to climb trees. Black rat snakes eat rodents, birds, birds' eggs. They kill their prey by constriction. Farmers are well aware of the value of black rat snakes in controlling destructive rodents. Young of this species are light gray with dark brown or black markings (see inset), but after a year or two of growth, the color normally will change to a more uniform black.

**Missouri Distribution:** Statewide, but shows some indication of being replaced by the gray rat snake—a subspecies—in the southeastern corner.



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Hatchling





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## Western Fox Snake

*Elaphe vulpina*

This is a marsh-dwelling member of the rat snake group. General color is yellowish, greenish-brown or tan, with large brown blotches on the back and smaller ones on the sides. The head of fox snakes may show some orange color, which might cause them to be misidentified as a copperhead. Belly color is normally yellow, marked with a distinct black, checkered pattern. Length averages from 36 to 54 inches (91-137 cm). The species is believed to be an inhabitant of open grasslands and borders of woods. In Missouri, the fox snake has been found near large, natural marshes, but it is not a common snake. Food includes small rodents and birds. Fox snakes kill their prey by constriction, vibrate their tail when alarmed and will bite to defend themselves.

**Missouri Distribution:** Northern third of the state.



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## Western Mud Snake

*Farancia abacura reinwardtii*

Local Name: hoop snake

This is a shiny, iridescent snake of the southeastern swamps. It is shiny black on top and the belly is red, pink and orange with some black spots. The tail of most specimens ends in a sharp point, which is harmless. Length ranges from 40 to 54 inches (102-137 cm). This species lives in and near the large swamps in the southeastern corner of the state. Mud snakes have specialized food habits; primarily, they eat an aquatic salamander called the three-toed amphiuma. Mud snakes also eat salamanders, tadpoles and fish. A myth associated with this species contends that it can place its tail in its mouth and roll downhill at high speed. We are not sure of the origin of this myth, but there is no scientific basis to it.

**Missouri Distribution:** Restricted to the southeastern corner of the state.



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## Plains Hog-nosed Snake

*Heterodon nasicus nasicus*

This species is restricted to sandy, loose prairie soils. The Plains hog-nosed snake differs from the eastern hog-nosed snake by having a sharply upturned snout and black pigment on the underside of the tail. It is 16 to 25 inches (41-64 cm) long. This species always has been quite rare in the state. Toads, snakes and lizard eggs are the primary foods, but small rodents are also eaten. Their shovellike snout is used to dig out prey items which they detect by smell. Like other hog-nosed snakes, this species is known to play dead in self defense.

**Missouri Distribution:** May occur in the loess hill prairies in extreme northwestern counties. The dusky hog-nosed snake—a subspecies—lives in the sand prairie areas of southeastern Missouri.



## Eastern Hog-nosed Snake

*Heterodon platirhinos*

Local Names: spreadhead, puff adder, hissing viper

A snake with an upturned snout, the eastern hognose normally is gray-brown or tan with distinct dark brown markings down its back. Some individuals lack most of the spots, except for two large black spots behind the head. The belly is mottled with gray. Length averages from 20 to 33 inches (51-84 cm). Preferred habitat is sandy areas or open woods with loose soil. This harmless snake has the ability to hiss loudly and spread its neck like a cobra. If this defense fails to ward off an enemy, the snake may thrash around, open its mouth, roll over and play dead. Hog-nosed snakes feed chiefly on toads but are also known to eat frogs and salamanders.

**Missouri Distribution:** Statewide.



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## Prairie Kingsnake

*Lampropeltis calligaster calligaster*

This is a fairly common snake over most of the state. Overall color is tan, brownish-gray or greenish-gray. Numerous dark blotches down the back and sides are brown, reddish or greenish-brown. The belly is yellowish-tan covered by blocky, brown markings. Length averages from 30 to 42 inches (76-107 cm). The prairie kingsnake lives in prairies and open woods, as well as rocky, wooded hillsides. Kingsnakes are known for their ability to eat other snakes including venomous species and are immune to the venom of copperheads, cottonmouths and rattlesnakes. Other foods include lizards, small rodents and, occasionally, birds. Kingsnakes kill their prey by constriction. Young or newly hatched prairie kingsnakes often are confused with the venomous copperhead. Kingsnakes have round markings on their back (see inset) while copperheads have hourglass-shaped markings.

**Missouri Distribution:** Statewide.



Hatchling



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## Speckled Kingsnake

*Lampropeltis getula holbrooki*

Local Name: salt and pepper snake

This handsome snake is generally black. A white or yellow spot in the center of most of the scales causes it to look speckled. The belly is yellowish with some irregular black markings. Length averages from 36 to 48 inches (91-122 cm). The speckled kingsnake can be found under rocks, logs or boards on rocky, wooded hillsides or near farm buildings. Like the rest of our kingsnakes, the speckled kingsnake vibrates its tail when alarmed. It feeds on lizards, snakes and small rodents.

**Missouri Distribution:** Statewide.



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## Red Milk Snake

*Lampropeltis triangulum sypila*

This is one of Missouri's most beautifully colored snakes. General body color is white or light tan with red or orange markings bordered with black. The belly is white and strongly checked with black. Length ranges from 21 to 28 inches (53-71 cm). This species lives under rocks on wooded rocky hillsides and cedar glades. The red milk snake often is misidentified as a coral snake, which is not found in Missouri. Coral snakes have red bands bordered by yellow. The red milk snake, like other kingsnakes, feeds on lizards, small snakes and small mice, killing its prey by constriction. The milk snake was so named for the myth that it had the ability to nurse milk from cattle.

**Missouri Distribution:** Statewide.



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## Eastern Coachwhip

*Masticophis flagellum flagellum*

This is one of our longest snakes. It is dark brown or black from the head back over half the length of the snake. The rest of the snake is tan or light brown. Some specimens in our area are totally black. Length averages from 42 to 60 inches (107-152 cm). The eastern coachwhip lives on rocky, wooded, south-facing hillsides, open woods and prairies. Because it is fast-moving and thrashes about when captured, some people believe coachwhips can whip a person to death. This is a myth. The coachwhip will bite to defend itself and may vibrate its tail when alarmed. Coachwhips eat mice, insects, lizards, small snakes and, occasionally, small birds.

**Missouri Distribution:** Southern half of the state except for the southeastern corner.



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## Mississippi Green Water Snake

*Nerodia cyclopion*

This semi-aquatic snake was once somewhat common in southeastern Missouri, but is now quite rare. This heavy-bodied snake is greenish-brown with numerous small, obscure brown markings. The belly is dark gray with numerous, yellow half-moon shaped markings. It is 30 to 45 inches (76-114 cm) in length. Due to drastic reductions in native cypress swamps, this species is endangered in Missouri. Water snakes bite viciously to defend themselves and also secrete a strong-smelling musk from glands at the base of the tail. This swamp-dwelling snake feeds mainly on fish, salamanders, frogs and crayfish.

**Missouri Distribution:** Restricted to the southeastern corner of the state.



## Yellow-bellied Water Snake

*Nerodia erythrogaster flavigaster*

This medium-sized water snake is named for its yellow belly. Coloration is mainly gray or greenish with little or no pattern. It is 30 to 48 inches (76-122 cm) long. This species is found in swamps, sloughs, lakes and ponds where it can be found basking on overhanging branches or logs in the water. Like other species of water snakes, yellow-bellied water snakes give birth to live young. Food includes fish, amphibians and crayfish.

**Missouri Distribution:** Lives throughout southeastern Missouri and north along the Mississippi River floodplain. The blotched water snake (see inset)—a subspecies—occurs in southwestern and western Missouri.



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## Broad-banded Water Snake

*Nerodia fasciata confluens*

A beautiful, semi-aquatic snake that is named for its broad, irregular shaped bands along the back. These bands can be brown, red-brown, or black in color and are separated by yellow and gray. Length averages from 22 to 36 inches (56-91 cm). They often are seen basking on logs or among branches above the water in cypress swamps, river sloughs, or oxbow lakes. Like other water snakes, broad-banded water snakes often are mistaken for western cottonmouths and needlessly killed. Water snakes bite viciously to defend themselves and also secrete a strong-smelling musk from glands at the base of the tail.

**Missouri Distribution:** Restricted to the southeastern corner of the state.



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## Diamond-backed Water Snake

*Nerodia rhombifer rhombifer*

Of the seven types of water snakes native to Missouri, the diamondback is the largest. The common name is derived from the light areas along the snake's back which may be shaped like diamonds. Overall color may be light brown or dull yellow, with dark brown markings on the sides and back. Two rows of dark brown half-moons border the yellow belly. Scales along the body have keels, which cause water snakes to feel rough. Length ranges from 30 to 48 inches (76-122 cm). Diamondbacks may live along slow-moving rivers, but more commonly are seen along river sloughs, oxbow lakes and swamps. Diamondback water snakes eat slow-moving or dead fish, frogs and toads.

**Missouri Distribution:** Absent from the Ozarks; common in southeastern corner and in northern and western Missouri. Does not occur in extreme northern counties.



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## Northern Water Snake

*Nerodia sipedon sipedon*

Local Name: banded water snake

This is Missouri's most common species of water snake. A gray to reddish-brown snake with dark brown crossbands, its belly is cream-colored with numerous black and reddish half-moon markings. Scales along the back and sides are keeled. Length ranges from 24 to 42 inches (61-107 cm). Northern water snakes live in or near any aquatic habitat: ponds, lakes, sloughs, streams, rivers and marshes. Water snakes eat fish, frogs, tadpoles, toads and salamanders. Although water snakes will bite to defend themselves, their bite is harmless.

**Missouri Distribution:** Found throughout the northern two-thirds of the state. A subspecies, the midland water snake, lives in the southern third of the state.



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## Rough Green Snake

*Opheodrys aestivus aestivus*

This is a long and slender snake often seen in the Ozarks. It is light green above and has a white or yellowish belly. Scales on the back have small ridges or keels. Length ranges from 22 to 32 inches (56-81 cm). This species is active by day and lives in bushes, vines and low-hanging branches of trees near streams or lakes. It is often overlooked because it blends so well with its surroundings. Food includes soft-bodied insects—especially grasshoppers, crickets and smooth caterpillars—and spiders.

**Missouri Distribution:** Throughout the southern half of the state.



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## Smooth Green Snake

*Opheodrys (Liochlorophis) vernalis*

This gentle snake lives in grassy meadows in the northern half of the state. This species differs from the rough green snake by having smooth scales, a smaller size, and a more northern distribution in Missouri. It is 14 to 20 inches (36-51 cm) long. This harmless snake will struggle to escape, but seldom attempts to bite when handled. Due to the habitat destruction and the uses of insecticides, smooth green snakes have not been seen in the state for many years. Upon death both species of green snakes will turn a pale blue. They feed mainly on insects, spiders and slugs.

**Missouri Distribution:** Scattered counties in the northern half of the state.



## Bullsnake

*Pituophis catenifer sayi*

The bullsnake is Missouri's largest snake. It is tan or cream-colored with numerous, large, brown or black blotches. The tail may have light and dark bands. Often a dark line angles from the eye down to the jaw. The belly is yellow or cream-colored, with dark brown or black spots along the sides. Length averages from 37 to 72 inches (94-183 cm). Commonly considered a prairie species, it may also be found in open areas along the border of the Ozarks. Bullsnares take shelter in large clumps of grass or mammal burrows. This large snake may hiss loudly and vibrate its tail when alarmed. Food includes small mammals—especially rodents—as well as birds and bird's eggs. This species is extremely valuable in controlling destructive rodents. Bullsnares kill their prey by constriction.

**Missouri Distribution:** Statewide except for the southeastern third of the state.



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## Graham's Crayfish Snake

*Regina grahamii*

This semi-aquatic snake is fairly nondescript. They are brown to yellow-brown in color with yellowish-tan stripes along the side of the body. Length ranges from 18 to 28 inches (46-71 cm). This reclusive snake often takes shelter under rocks, logs, or in crayfish burrows along the edge of streams, marshes, sloughs or ponds. It is named for feeding mainly on freshly molted crayfish and overwintering in crayfish burrows. Like most other snakes associated with water, Graham's crayfish snake are often misidentified as western cottonmouths and needlessly killed.

**Missouri Distribution:** Statewide, except for the Ozarks.



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## Ground Snake

*Sonora semiannulata*

A small, secretive, shiny snake that is highly variable in color. It can be gray, brown, orange or even red with or without dark bands, and it has a plain white or cream colored belly with dark transverse bars on the tail. It is 8 to 12 inches (20-31 cm) long. Ground snakes are usually found along rocky glades, and open, rocky woodlands on south and southwest facing slopes where they remain hidden under flat rocks and are seldom seen. Ground snakes eat mainly scorpions, centipedes and spiders, including the black widow.

**Missouri Distribution:** Southwestern corner of the state.



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## Midland Brown Snake

*Storeria dekayi wrightorum*

The midland brown snake is a close relative of the redbelly snake. The general color is gray-brown to reddish-brown, with a white or yellowish belly. Its back has a distinct tan stripe bordered by two rows of small, dark brown spots; the spots normally are joined by small lines across the tan stripe. It is 9 to 13 inches (23-33 cm) long. This species prefers a moist environment and can be found under logs, boards or rocks near marshes, swamps, moist woods and, sometimes, rocky hillsides. Brown snakes eat earthworms, slugs, snails and soft-bodied insects.

**Missouri Distribution:** Statewide, but intergrades with the Texas brown snake in the western part of Missouri.



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## Northern Red-bellied Snake

*Storeria occipitomaculata occipitomaculata*

This is one of our smallest snakes. General color is gray-brown or reddish-brown on top and bright red or orange below, and the redbelly snake usually has a light tan stripe down the back. It is 8 to 10 inches (20-25cm) long. Redbelly snakes are secretive and normally live under rocks or logs in rocky or damp woods. Food includes earthworms, slugs and, occasionally, insects. This species is sometimes mistaken for a young copperhead and needlessly killed.

**Missouri Distribution:** Statewide, except for several northwestern counties.



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## Flat-headed Snake

*Tantilla gracilis*

This is Missouri's smallest snake. General color is tan, gray-brown or reddish-brown. The head sometimes is slightly darker than the rest of the body or is black, and the belly is salmon pink. Length averages from 7 to 8 inches (18-20 cm). It is most likely to be under rocks where there is slightly moist soil, and south-facing, rocky, wooded hillsides are its preferred habitat. The flathead snake feeds on centipedes and insect larvae.

**Missouri Distribution:** Southern half of the state except for the southeastern corner.



## Western Ribbon Snake

*Thamnophis proximus proximus*

This long, slender snake is a variety of garter snake. Two wide, black stripes border a yellow or orange stripe down its back, and often there is a yellow or orange spot on its head. The belly is greenish. Length ranges from 20 to 30 inches (51-76 cm). This species lives in wooded areas near water and may be seen along the banks of streams or the edges of ponds. Ribbon snakes eat small frogs and, sometimes, minnows. They also will secrete a foul-smelling musk from glands at the base of the tail when first captured, as with other members of the garter snake group.

**Missouri Distribution:** Statewide.



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## Plains Garter Snake

*Thamnophis radix*

Another kind of garter snake that is associated with wet meadows and prairies, marshes, lakes and ponds. This snake is very similar to the other garter snakes, but it usually has a yellowish-orange stripe down the middle of the back, an alternating double row of black spots along the sides, and black bars along the edge of the upper green lip. It is 15 to 28 inches (38-71 cm) long. Like other species of garter snakes, this species feeds mainly on earthworms, amphibians and minnows.

**Missouri Distribution:** Occurs mainly in the north-central and western corner, with an isolated population in the eastern part of the state near St. Louis.



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## Eastern Garter Snake

*Thamnophis sirtalis sirtalis*

Of the five kinds of garter snakes in Missouri, the eastern garter snake is the most common. Color is variable; it may be dark brown, greenish or olive, and normally there are three yellowish stripes—one on the back and one on each side. Dark areas between the light stripes may be spots instead of stripes. The skin between scales along the sides may be red or orange. The belly is usually yellowish-green with two indistinct rows of black spots. Length ranges from 18 to 26 inches (46-66 cm). Garter snakes often are found under boards, rocks or other objects in the city lots, near farm buildings, in meadows or along streams. Like many kinds of harmless snakes, garter snakes will bite to defend themselves. Food consists of earthworms, frogs, toads, salamanders, minnows and even small mice.

**Missouri Distribution:** Occurs throughout the eastern half of the state. The red-sided garter snake (see inset)—a subspecies—lives in the western half of Missouri.



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## Lined Snake

*Tropidoclonion lineatum*

This small, secretive snake is fairly easy to identify. It is mainly brown to grayish-brown in color, with lighter color stripe down the middle of the back and distinctive double row of half-moon shape markings along the belly. Length averages from 8 to 15 inches (20-38 cm). Lined snakes live in a wide variety of habitats, from native prairies and glades, to old trash dumps and empty town lots. This species feeds primary on earthworms and will release a foul-smelling musk from the base of the tail when handled.

**Missouri Distribution:** Lives mainly in the western part of the state with scattered populations in extreme northeast counties and the St. Louis area.



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## Rough Earth Snake

*Virginia striatula*

The rough earth snake is a close relative of the western earth snake and is extremely similar in appearance. Rough earth snakes differ from western earth snakes by having keeled scales along the back, five labial scales along the upper lip, and a single scale between the nostrils—compared to relatively smooth scales along the back, six labial scales along the upper lip, and two scales between the nostrils for the western earth snake. It is 7 to 10 inches (18-25 cm) long. This species is mainly found in open woodlands with abundant ground cover. Rough earth snakes feed mainly on earthworms, and occasionally eat snails and slugs. They give birth to live young, with females producing up to 10 young in a litter.

**Missouri Distribution:** Southern half of the state excluding southeastern counties.



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## Western Earth Snake

*Virginia valeriae elegans*

A small snake with a cone-shaped head, this snake generally is gray to light brown or reddish-brown. It has no distinct markings. The belly is plain white or cream-colored. Length ranges from 7 to 10 inches (18-25 cm). This nondescript little snake is a woodland species and usually remains hidden under rocks, logs or in leaf litter. It feeds chiefly on earthworms.

**Missouri Distribution:** Throughout the southern half of the state.



# Venomous Snakes

It is important for those who spend time in Missouri's outdoors to learn to identify venomous snakes. Use these photos, descriptions and maps to familiarize yourself with the size, color and distribution of these snakes. Several species of harmless snakes (hognose, garter and water snakes) spread their head and neck when alarmed, which may cause the head to appear triangle-shaped. Consequently, this characteristic is not reliable for distinguishing venomous snakes from harmless ones.

## Osage Copperhead

*Agkistrodon contortrix phaeogaster*

This is our most common venomous snake. Color varies from grayish-brown to pinkish-tan, with hourglass-shaped crossbands of dark gray, brown or reddish-brown. The head may have some pink or orange color, hence the name "copperhead." The tail may be yellow or greenish-yellow, especially in young specimens, and the belly usually is a dusky mixture of gray, tan and black. Length averages from 24 to 36 inches (61-91 cm). Copperheads make their homes on rocky hillsides and along the edges of forests. They also spend time among trees and in brush along prairie streams. Copperheads, often found near abandoned farm buildings, will vibrate their tails when alarmed. There is no record of a human death caused by a copperhead bite in this state, but medical treatment for such bites is necessary. Copperheads eat mice, lizards, frogs and sometimes small snakes.

**Missouri Distribution:** The Osage copperhead is found in the northern two-thirds of the state and is replaced by the southern copperhead—a subspecies—in the southern third of the state (shown in green on map).

All of Missouri's venomous snakes are pit vipers, which means they have an opening on each side of the head, called a sensory pit. A pair of hollow fangs are located on the front of the upper jaw. In daylight these snakes have eyes with vertical pupils—like a cat—while all harmless snakes have round pupils. This characteristic is not reliable for identification at night. Even the underside of the tail is helpful in distinguishing the two types of snakes: our venomous species have a single row of scales, while harmless snakes have two rows of scales.



Tom R. Johnson

Adult (above); juvenile (left). Note the yellow-green tail on the juvenile.

## Western Cottonmouth

*Agkistrodon piscivorus leucostoma*

Local Name: water moccasin

The name "cottonmouth" is derived from the white-colored lining of this snake's mouth. When alarmed, it opens its mouth widely, showing the cotton-white lining. General body color is black with little or no pattern or dark brown with darker crossbands on the back. The belly is dark brown or black. Length averages from 30 to 42 inches (76-107 cm). Young cottonmouths are superficially patterned like a copperhead and usually have a yellowish-green tail. This species lives in two distinctly different habitats; in southeastern Missouri, they live in swamps and oxbow lakes, and in the southern Ozarks, they live in rocky streams and river sloughs. The cottonmouth is a dangerously venomous species that can deliver a fatal bite. It is semi-aquatic and primarily a fish-eater, but also eats frogs, other snakes, lizards and rodents. Various harmless snakes often are misidentified as cottonmouths and needlessly killed.

**Missouri Distribution:** Southeastern corner and a spotty distribution throughout the Ozark Region.



Jim Rathert





Tom R. Johnson

## Timber Rattlesnake

*Crotalus horridus*

This is Missouri's largest venomous snake. Generally tan or yellowish-tan, the timber rattlesnake has markings along the back which are dark brown and change from blotches on the neck to bands near the tail. Often, a dark line extends from the eye along the angle of the jaw, and there is a rust-colored stripe down the back. It has a large rattle at the end of its tail. Length averages 36 to 60 inches (91-152 cm). This rattlesnake lives on rocky, wooded hillsides. In Missouri, it tends to congregate in selected south-facing rocky areas where it overwinters. Timber rattlesnakes eat a variety of rodents and also small rabbits. It is dangerously venomous, but there are few cases of rattlesnake bites in this state.

**Missouri Distribution:** Statewide.



Tom R. Johnson

## Eastern Massasauga Rattlesnake

*Sistrurus catenatus catenatus*

Local Name: swamp rattler

This snake is gray to dark gray with numerous brown or gray-brown blotches. The belly is dark gray or black, and there is usually a dark brown band extending backward from the eye onto the side of the neck. The end of the tail has a small rattle. Length averages from 18 to 30 inches (46-76 cm). This snake lives in marshy areas or wet prairies and may take shelter in burrows of crayfish or other animals. Massasaugas have become rare in Missouri because of habitat destruction and are on the state's Rare and Endangered Species list. Human deaths caused by its bite are rare, but tests show that the massasuga's venom is highly toxic, so it must be respected and classified as dangerous. Massasaugas eat mice, shrews, frogs and lizards.

**Missouri Distribution:** This species is found in scattered populations in the northern half of Missouri.



Tom R. Johnson

## Western Pygmy Rattlesnake

*Sistrurus miliarius streckeri*

Local Name: ground rattler

This is one of the smallest species of rattlesnakes in North America. General color is light grayish-brown, with a row of small, dark brown spots on the back and similar spots on each side. Most specimens also have a rust-colored stripe down the back. The belly is usually gray. The pygmy rattlesnake has a thin tail and a tiny rattle. Length averages from 15 to 20 inches (38-51 cm). This species lives under rocks on cedar glades and is so secretive that few people encounter it. The sound of the vibrating rattle is a faint buzz like the sound of a grasshopper. Food includes small lizards, snakes, frogs and mice. Although the bite of this species is not fatal, a bite victim should seek immediate medical attention. The pygmy rattlesnake should be respected and left alone.

**Missouri Distribution:** Counties bordering Arkansas and the eastern Missouri Ozarks.



## Facts on Snakebites

Few people in Missouri suffer venomous snakebites, despite the fact that there are five venomous species and at least one of them—the copperhead—is commonly encountered. Most bites occur when people are trying to kill or handle the snakes. About 8,000 people are bitten by venomous snakes each year in the United States. Fewer than five die, which amounts to a fraction of one percent. By comparison, about 120 people die annually from bee stings and 150 die when struck by lightning.

Encounters with venomous snakes can be prevented if you follow these simple rules:

- 1) Stay away from areas where there may be a concentration of venomous snakes, such as swamps, marshes and bluffs.
- 2) Wear protective footwear in areas where there are likely to be snakes. Thick leather or rubber boots or hightop hiking shoes will protect feet, ankles and lower legs.
- 3) Never place your hands under rocks or logs; do not step over rocks or logs. Step on them first, then over.
- 4) Step lively when hiking. Look the ground over, particularly around large rocks or logs, when you stop to stand or sit.
- 5) Wear rubber boots when fishing in streams that may harbor the venomous cottonmouth. If a cottonmouth falls in your canoe or boat, don't panic—get to shore and flip the snake out with a paddle, net or fishing rod. Trying to kill the snake in the boat may cause the snake to bite you or cause you to fall into the water.
- 6) Avoid any snake you cannot identify.

For current information on snakebite first-aid, contact your nearest American Red Cross.

**In the event of a venomous snakebite, seek medical attention immediately!**

## Conserving Missouri's Wildlife

Snakes are not popular creatures in our culture; the very mention of them evokes images of evil for most people. These animals, however, have a difficult time surviving—not only because of persecution, but primarily because of habitat destruction (deforestation, pollution and urbanization). As with many animals whose numbers are declining, most problems associated with the plight of our native snakes result from a lack of understanding. People traditionally have been brought up to fear and hate snakes; consequently, snakes have not fared well in their relations with humanity.

As with all other wildlife native to Missouri, snakes are an important part of the natural food chain and play an important role in the balance of nature. As an example, snakes are helpful in reducing populations of destructive rodents and, in turn, are prey to such wildlife as hawks, great blue herons, otters and game fish. Overall, snakes are a fascinating part of the natural world in which we live, and seeing a snake in the wilds of Missouri can add to your outdoor adventures.

## Venomous vs. Non-venomous



Tom R. Johnson

### ***Eastern Massasauga Rattlesnake***

*Missouri's venomous snakes have vertical "slit" pupils.*



Jim Rathert

### ***Eastern Hog-nosed Snake (non-venomous)***

*Missouri's non-venomous snakes have rounded pupils.*



Jim Rathert

*The rattle is a familiar characteristic of rattlesnakes. Other venomous and non-venomous snakes may shake their tails in dry leaves.*



Tom R. Johnson

*Bullsnake eating a mouse.*

Equal opportunity to participate in and benefit from programs of the Missouri Department of Conservation is available to all individuals without regard to their race, color, national origin, sex, age or disability. Complaints of discrimination should be sent to the Department of Conservation, P.O. Box 180, Jefferson City, MO 65102, OR U.S. Fish and Wildlife Service, 18th and "C" Streets NW, Washington D.C. 20240, Missouri Relay Center—1-800-735-2966 (TDD).